

REMARKS

Claims 1, 3, 4, and 6 to 15 are pending and rejected. Claims 14 and 15 are also objected to. The abstract is objected to. Applicants are herein amending the specification and claim 1 and 14, and canceling claim 15, without prejudice or disclaimer. Applicants request reconsideration of the pending claims in light of the amendments and following arguments.

Claim Amendments

Applicants are herein amending claims 1 and 14 to clarify the features of the claimed method and software, respectively. In addition, applicants are herein amending claims 1 and 14 to delete an extraneous “and.” No new matter is introduced by the amendments to the claims. Support for the amendments may be found, *inter alia*, in **Figure 2** for a parts list having reference numerals/symbols and names of parts and paragraph [0062] for a disassembly illustration being generated from three dimensional data: “Furthermore, this computer system generates a disassembly illustration shown in FIG. 1 from 3-dimensional graphic data and this disassembly algorithm.”

Applicants are herein canceling claims 15, without prejudice or disclaimer. Applicants explicitly reserve the right to file one or more continuation applications to the cancelled subject matter.

Objections

The Abstract is objected to as not in accordance with MPEP § 608.01(b). Applicants are herein amending the Abstract to present a single paragraph within the range of 50 to 150 words, thereby rendering the objection moot. A clean copy of the Abstract is provided at the end of the response.

Claims 14 and 15 are objected to as including an extraneous “and” before the transitional phrase “comprising.” Applicants are herein amending claim 14 to remove the extraneous “and” and canceling claim 15, without prejudice or disclaimer, thereby rendering the objection moot.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 14 and 15 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for the section “parts consisting of the product.” Applicants are herein amending claim 14 to clarify that the phrase is “parts of the product,” and canceling claim 15, thereby rendering moot the rejection under 35 U.S.C. § 112, second paragraph. Therefore, applicants request withdrawal of the indefiniteness rejection.

Rejection under 35 U.S.C. § 101

Claims 15 is rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Applicants are herein canceling claim 15, thereby rendering moot the rejection under 35 U.S.C. § 101. Therefore, applicants request withdrawal of the rejection.

Features of the Claimed Invention

Independent claims 1 and 14 require at least the following features:

- a parts catalog of a product generated from three dimensional data and a parts list of the product, wherein the parts catalog comprises the parts list listing at least a name of a part and a reference numerals/symbol of the part, and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numerals/symbol; and

- disassembly illustrations generated from said three dimensional data based on said disassembly algorithm.

According to the method and computer software program of the present invention, illustrations in a parts catalog are generated from 3 dimensional data; and this parts catalog is a parts catalog that is used by, for example, workers in an assembling plant, for actual assembling and disassembling of a product having a plurality of parts. Such a parts catalog normally includes a disassembled illustration of the product and a part list of the parts contained in the illustration, wherein reference numerals/symbols are assigned to respective parts of the product and are displayed in the illustration *and* in the part list. A reference numeral assigned to a particular part is displayed both in the illustration and the parts list in the parts catalog. With such a parts catalog, a user can identify each of the parts of a product, and steps or the order of assembling those parts into the product or disassembling the product into parts.

One of the objectives of the present invention is to create such a parts catalog of a product automatically from a parts list prepared by a user and three dimensional data such as CAD or XVL data. That is, in the present invention, reference numerals are assigned to parts and partially assembled parts in a parts list created by a user, and an illustration is dynamically generated from three dimensional data based on the parts list. For that, a disassembly algorithm is created from the parts list. Then, based on this disassembly algorithm, an illustration is generated from the three dimensional data. By doing so, the consistency of reference numerals between a parts list and an illustration is achieved, which eliminates the burden in the conventional methods to check for consistency (especially the numbers) among the parts list and the illustrations (paragraph [0007] of the present application).

Rejection under 35 U.S.C. § 102(b) (Maeda)

Claims 1, 14, and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Publication No. 2001/0056488 to Maeda *et al.* (hereafter referred to as “Maeda”). Applicants traverse the rejection.

As explained above, claims 1 and 14 require at least disassembly illustrations generated from said three dimensional data based on said disassembly algorithm, *i.e.*, an illustration is dynamically generated from three dimensional data such as CAD data based on certain parameters, in the case of the present invention, based on a disassembly algorithm. In other words, illustrations created in this manner are the result of rendering three dimensional data into two dimensional illustrations.

In contrast, although Maeda describes a method for creating a parts catalog, *Maeda obtains disassembly illustrations of a product by scanning existing drawings on paper*. More specifically, paragraphs 422 to 426 of Maeda explain how an illustration (image data) is obtained using a scanner as follows (emphasis added):

“...the control means 410 having a scanner 431 to serve as an information collecting means,... control means 410 comprises an image data writing means 411,... The image data writing means 411 has a function to write the **image data of an assemblage layout acquired with scanner 431**, into memory means 420”.

Referring to Figure 10 and paragraphs 203-207 of Maeda, the Office states that Maeda generates a parts catalog of a product from three dimensional data and a parts list of the product, but paragraphs [203] to [207] and the rest of Maeda indicate that the drawing 1461 in Figure 10, which is an image data in the form of a bit map data (see paragraph [207]), is created from a two dimensional drawing by means of scanning, and not generated from three dimensional data.

As explained above, Maeda does not disclose, teach, or suggest a parts catalog of a product generated from three dimensional data and a parts list of the product. Accordingly,

applicants request withdrawal of the rejection of claims 1 and 14 under 35 U.S.C. § 102(b) over Maeda.

Rejection under 35 U.S.C. § 102(e) (Ando)

Claims 1, 3, 4, 7 to 10, 14, and 15 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 7,075,531 to Ando *et al.* (hereafter referred to as “Ando”). Applicants traverse the rejection.

Claims 1 and 14 (and their dependent claims 3, 4, and 7 to 10) of the present invention requires creating a parts catalog, wherein the parts catalog includes:

- (1) a parts list that lists at least reference numerals and names of parts of a product; and
- (2) a disassembled illustration of the parts contained in the list wherein the same reference numerals are displayed for the respective parts.

The Office, referring to Figure 3, states that Ando discloses a parts catalog of the present invention. However, Ando does not show any parts catalog. Rather, the display of the elements 32 and 30 in Figure 3, which the Office points out, is one of typical CAD screens, and not a parts catalog, as required in the present invention. In other words, it does not contain any reference numerals/symbols. The element 32 is an assembly structure of components of a product, and the element 30 shows timelines of animation of each component, therefore they are not usable as a parts list of a parts catalog.

In addition, the Office states, referring to column 6, lines 50 to 55 in Ando, that Ando discloses the step of assigning reference numerals/symbols to parts and partially assembled parts in the parts list. In Ando, information regarding a component may be provided by user’s clicking of the component on a screen. However, Ando does not disclose or require assigning reference numerals/symbols to parts and partially assembled parts in the parts list.

Since, as explained above, Ando does not disclose, teach, or suggest the features of independent claims 1 and 15, Ando cannot anticipate dependent claims 3, 4, and 7 to 10.

Additionally, regarding claim 3, the Office states on page 7 of the latest Action that Ando teaches:

the parts list includes disassembly definition information comprising a tree structure consisting of a node and leave, which are processes and parts, respectively, wherein the node comprises the basic process (Fig. 3, elements 32, 30; Col.5, lines 43-63; Col. 6, line 56 – Col. 7, line 35).

Component 32 in Figure 3 of Ando only shows assembly structure information normally contained in three dimensional data, such as 3-D CAD data. However, independent claim 1 requires at least a parts catalog to be generated from (1) three dimensional data having assembly structure information, and (2) a parts list, which is created by a user. In addition, dependent claim 3 requires the parts list to include “disassembly definition information comprising a tree structure consisting of a node and leave said node being a process and said leave being a part or a partially assembled part.” Thus, the claimed invention requires not only (1) assembly structure information, but also (2) disassembly definition information, a creation of which is explained in detail with respect to Figures 14 to 27 in the specification and explicitly set forth as a feature of independent claims 1 and 14.

The following paragraphs of the present specification show one embodiment wherein assembly structure information, which is called “group structure” in the present application, stored in three dimensional data (in this particular case a XVL file), is edited in a Group Editing Panel (Figure 14), and disassembly definition information (parts list) is created with Process Editing Panels (Figures 16 to 27).

[0186] Generation of the disassembly definition information (parts list), generation of the disassembly algorithm based on the disassembly definition information (parts list), and generation and modification of the animation will be described below using an example of an electric saw

assembly process shown in FIG. 13. **The 3-dimensional graphic data for this electric saw is stored in the data storage unit 6 in an XVL file named “nokogiri.xv3”.**

[0187] Stored in this XVL file is a group structure of each part constituting the saw, and when displayed, they look like the one shown in FIG. 14. In this embodiment, this screen in FIG. 14 is called a “group editing panel” and designed to allow editing of the group structure of the parts with various menu commands (not shown).

[0195] The disassembly definition information is generated using a process editing panel 21 as shown in FIG. 16 and later. In this embodiment, by creating processes in the process editing panel 21 the disassembly definition information generation unit 17 structures those processes as the disassembly definition information 11 and stores them in the data storage unit 6, as described above.

[0199] Then “body_l” (the left cover) is added as a base part of the process in one of the following 3 systems:

[0200] (1) Select the “body_l” 28 in the “group editing panel” (FIG. 14). Click a “▽ button” 25 and then click a “○ 1 saw assembly” 24 in the process editing panel 21 as shown in FIG. 20.

[0201] (2) Select the “body_l” 28 in the “group editing panel” and right-click the “○ 1 saw assembly” 24 in the process editing panel 21 to add a group.

[0202] (3) Right-click the “body_l” 28 in the “group editing panel” to perform copying. Then right-click the “○ 1 saw assembly” 24 in the process editing panel 21 to perform pasting.

Paragraphs [0199] to [0202] explain how a part/part-group “body_l” in the pre-existing group structure is selected in the group editing panel, and a new process is created in the process editing panel. Please note that Element 32 in Figure 3 of Ando shows assembly structure information that is originally contained in three dimensional data such as CAD or XVL data. Ando only has this assembly structure information, and does not disclose nor suggest a creation of a parts list by a user having disassembly definition information, as required by claims 1 and 14 and their dependent claims.

Accordingly, applicants request withdrawal of the rejection under 35 U.S.C. § 102(e) over Ando.

Rejection under 35 U.S.C. § 103(a) (Maeda in view of Kawai)

Claims 3, 4, and 7 to 10 are rejected under 35 U.S.C. § 103(a) over Maeda in view of EP-A-1,288,868 (hereinafter referred to as “Kawai”). Applicants traverse the rejection

Maeda does not disclose a parts catalog that requires the generation of disassembly illustrations from three dimensional data. Furthermore, Maeda also does not disclose the required processes for disassembling.

Kawai does not supply these missing features required by the claimed invention. Like Ando, Kawai uses assembly structure information, but does not disclose a parts catalog of the present invention as explained above, nor disassembly definition information. Like Ando, the structure shown in Figure 3 of Kawai is an assembly structure of a product, and Kawai does not disclose a parts catalog that contains a parts list, listing at least a name of a part and a reference numerals/symbol of the part; and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numeral/symbol. Kawai does not disclose a parts catalog that contains a parts list, listing at least a name of a part and a reference numerals/symbol of the part; and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numeral/symbol, as explicitly required by claims 1 and 14, as amended, and their dependent claims 3, 4, and 7 to 10. Therefore, the combined teachings of Maeda and Kawai do not teach or suggest the claimed invention, as set forth in claims 3, 4, and 7 to 10.

Accordingly, applicants request withdrawal of the rejection under 35 U.S.C. § 103(a) over Maeda in view of Kawai.

Rejection under 35 U.S.C. § 103(a) (Ando or Maeda in view of Kawai, either in further view of Minami)

Claim 6 is rejected under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of US-A-5,619,630 (hereinafter referred to as “Minami”). Applicants traverse the rejection because Minami does not supply the required features missing from Ando (*i.e.*, a parts catalog that contains a parts list listing at least a name of a part and a reference numerals/symbol of the part, and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numeral/symbol) or from the combination of Maeda and Kawai (*i.e.* (1) a parts catalog that requires the generation of disassembly illustrations from three dimensional data; and (2) processes for disassembling). Thus, even if it were obvious to modify the Ando method or the Maeda/Kawai method in the manner urged by the Office (and applicants are not conceding that it would have been obvious to do so), one would still not have obtained applicants’ claimed method.

Based on the foregoing reason, the combination does not render claim 6 obvious. Accordingly, applicants request withdrawal of the rejection of claim 6 under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of Minami.

Rejection under 35 U.S.C. § 103(a) (Ando or Maeda in view of Kawai, either in further view of Aragaki)

Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of JP 2003/006245 (hereinafter referred to as “Aragaki”). Applicants traverse the rejection because Aragaki does not supply the required features missing from Ando (*i.e.*, a parts catalog that contains a parts list listing at least a name of a part and a reference numerals/symbol of the part, and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numeral/symbol) or from the combination of Maeda and Kawai (*i.e.* (1) a parts catalog that requires the generation of disassembly illustrations from three dimensional data; and (2) processes for

disassembling). Thus, even if it were obvious to modify the Ando method or the Maeda/Kawai method in the manner urged by the Office (and applicants are not conceding that it would have been obvious to do so), one would still not have obtained applicants' claimed method.

Based on the foregoing reason, the combination does not render claims 11 and 12 obvious. Accordingly, applicants request withdrawal of the rejection of claims 11 and 12 under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of Aragaki.

Rejection under 35 U.S.C. § 103(a) (Ando or Maeda in view of Kawai, either in view of Katsuma)

Claim 13 is rejected under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of "Automatic Arrangement of Meta-Objects in Assembly Illustrations" to Katsuma (hereinafter referred to as "Katsuma"). Applicants traverse the rejection because Katsuma does not supply the required features missing from Ando (*i.e.*, a parts catalog that contains a parts list listing at least a name of a part and a reference numerals/symbol of the part, and a disassembled illustration of the product wherein the part in the part list is illustrated in a disassembled state with its reference numeral/symbol) or from the combination of Maeda and Kawai (*i.e.* (1) a parts catalog that requires the generation of disassembly illustrations from three dimensional data; and (2) processes for disassembling). Thus, even if it were obvious to modify the Ando method or the Maeda/Kawai method in the manner urged by the Office (and applicants are not conceding that it would have been obvious to do so), one would still not have obtained applicants' claimed method.

Based on the foregoing reason, the combination does not render claim 13 obvious. Accordingly, applicants request withdrawal of the rejection of claim 13 under 35 U.S.C. § 103(a) over Ando or Maeda in view of Kawai, either in further view of Katsuma.

Conclusions

Applicants request:

- (1) entry of the amendments to the specification and claims;
- (2) reconsideration and withdrawal of the objection to the specification and claims;
- (3) reconsideration and withdrawal of the rejections of the claims; and
- (4) allowance of claims 1, 3, 4, and 6 to 14.

If the Examiner is of a contrary view, the Examiner is requested to contact the undersigned attorney at (404) 459-5642.

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